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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/814,671 | 03/30/2004 | Lee D. Whetsel | TI-30299.1 | 7725 |

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TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

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| EXAMINER |
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TORRES, JOSEPH D

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| ART UNIT | PAPER NUMBER |
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2112

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| NOTIFICATION DATE | DELIVERY MODE |
|-------------------|---------------|

08/03/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com
uspto@dlemail.itg.ti.com

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/814,671 | Applicant(s) WHETSEL, LEE D. | |
| | Examiner Joseph D. Torres | Art Unit 2112 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. The last restriction was erroneously made since claims 2-11 were already cancelled.

Drawings

2. The drawings are objected to because of handwritten symbols being difficult to decipher. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because the abstract exceeds 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 2112

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Attaway; Brett W. et al. (US 5701308 A, hereafter referred to as Attaway) in view of Matsuzawa; Hajime et al. (US 6343365 B1, hereafter referred to as Matsuzawa).

35 U.S.C. 103(a) rejection of claim 12.

Attaway teaches functional circuitry (Fig. 2 in Attaway teaches boundary scan cells surrounding functional circuitry); and a scan path including a test data input terminal (Scan Data Input in Fig. 2 in Attaway), a test data output terminal (Scan Data Output in Fig. 2 in Attaway), and scan cells, each scan cell including an input multiplexer with a functional data input lead connected to the functional circuitry and a test data input lead coupled to the test data input terminal (Boundary Scan Cells in Figure 3A and Internal Scan Cells in Figure 3B of Attaway are scan cells including an input multiplexer with a functional NDI data input lead connected to the functional circuitry and a test SDI data input lead coupled to the test data input terminal), the scan cells including a dedicated scan cell with a functional data output lead separate from a test data output lead (Boundary Scan Cells in Figure 3A in Attaway are dedicated scan cell with a functional NDO data output lead separate from a test SDO data output lead), and shared scan cells, each with a combined output lead for functional data output and test data output (Internal Scan Cells in Figure 3B of Attaway are shared scan cells, each with a combined output NDO/SDO lead for functional NDO data output and test SDO data

output), the shared scan cells being connected in series with one another with the combined output of one shared scan cell being connected to the test data input lead of another shared scan cell (Figure 4 in Attaway teaches an Internal/Shared scan register 18 made up of the Internal/Shared Scan Cells in Figure 3B of Attaway), the scan path also including multiplexer circuitry having an input coupled to the test data output lead, an input directly connected to a combined output lead and a select input (MUX 32 in Figure 4 is a scan path multiplexer having an input coupled to the test SDO data output lead of External scan register 20, an input directly connected to the combined NDO/SDO output lead of Internal/Shared scan register 18 and a select input from multiplexer 11).

However Attaway does not explicitly teach the specific use of the scan path multiplexer output connected in the scan path.

Matsuzawa, in an analogous art, teaches use of the scan path multiplexer output connected in the scan path (Figure 2 in Matsuzawa teaches that the output of External I/O scan register is connected in the scan path).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Attaway with the teachings of Matsuzawa by including use of the scan path multiplexer output connected in the scan path. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of the scan path multiplexer output connected in the scan path would have provided shortened testing times (Col. 2, lines 59-61 in Matsuzawa).

35 U.S.C. 103(a) rejection of claim 13.

See Internal/Shared Scan Cells in Figure 3B of Attaway and Internal/Shared scan register 18 of Figure 4.

35 U.S.C. 103(a) rejection of claim 14.

See Boundary/Dedicated Scan Cells in Figure 3A of Attaway and Boundary/Dedicated scan register 20 of Figure 4.

35 U.S.C. 103(a) rejection of claim 15.

Figure 2 in Matsuzawa teaches that the output of External I/O scan register is connected in the scan path.

35 U.S.C. 103(a) rejection of claim 16.

MUX circuitry 12 in Figure 2 of Matsuzawa.

35 U.S.C. 103(a) rejection of claims 17-20.

Scan cells are connected in series whereby the input of each scan cell is connected to the output of a previous scan cell. A scan cell is a memory cell providing buffering.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JOSEPH D. TORRES
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100

Joseph D. Torres, PhD
Primary Examiner
Art Unit 2112